Remarks

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Thus, the claims have been amended to avoid the use of the expression "and/or" objected to by the Examiner in the first paragraph on page 3 of the Office Action, as a result of which this objection has been rendered moot.

Each of claims 13-15 has been amended to incorporate the subject matter of claim 19, as a result of which claims 19, 28 and 29 have been cancelled.

Each of claims 13-15 has been further amended to incorporate the subject matter of claim 16, as a result of which claims 16, 24 and 25 have been cancelled.

The rejection of claims 13-22 and 24-35 under the second paragraph of 35 U.S.C. §112 is respectfully traversed.

The first paragraph of this rejection, based on the term "modification" in the claims, has been rendered moot in view of the claim amendments, since the modification is more particularly defined as being a chemical modification selected from the group consisting of esterification, etherification and crosslinking.

Also in connection with the rejection under 35 U.S.C. §112, the Examiner takes the position that the recitation "molecular weight distribution of not greater than 1.25" renders the claims indefinite, as failing to recite a lower limit. However, Applicants submit that it is not necessary to recite a lower limit for the molecular weight distribution, because the lower limit is one, and is not less than one according to its definition.

The rejection of claim 23 under 35 U.S.C. §112 has been rendered moot in view of the cancellation of this claim.

The patentability of the presently claimed invention after entry of the foregoing amendments, over the disclosures of the references relied upon by the Examiner in rejecting the claims, will be apparent upon consideration of the following remarks.

Initially, the rejection of claims 13-14 and 23 under 35 U.S.C. §102(b) as being anticipated by Hausmanns (WO '355) as evidenced by IUPAC Gold Book, has been rendered moot, in view of the claim amendments. That is, the subject matter of claims 16 and 19, neither of which is included in this rejection, has been incorporated into each of claims 13 and 14.

The rejection of claims 13-22 and 24-34 under 35 U.S.C. §103(a) as being unpatentable over Hausmanns in view of Bengs et al. (WO '836/US '885) as evidenced by IUPAC Gold Book, is respectfully traversed.

Hausmanns, as stated by Examiner, discloses a molded article from poly(1,4-α-D-glucan) and starch (abstract). The poly(1,4-α-D-glucan) has a degree of polymerization between 40 to 300, which corresponds to the low molecular weight α-1,4-glucan of the present invention. Hausmanns suggests that the poly(1,4-D-glucan) is combined with starch, but neither teaches nor suggests that the poly(1,4-α-D-glucan) is combined with high molecular weight α-1,4-glucan. The reference discloses producing a molded article wherein the poly(1,4-α-D-glucan) is combined with Amyloplast PE 004 potato starch (see Example 1 of Hausmanns). The Amyloplast potato starch (20 % unbranched amylase) has a degree of polymerization of 4,000. The Examiner considers that the potato starch corresponds to the high molecular weight α-1,4-glucan of the present invention.

However, the potato starch of Hausmanns is clearly different from the high molecular weight α-1,4-glucan of the present invention. The α-1,4-glucan of the present invention is defined in paragraph [0045] of the present specification as at least two saccharide units linked by an α-1,4-glucoside bond and straight chain glucan. The potato starch of Hausmanns contains about 80 % amylopectin (see page 18, Example 1 of Hausmanns). Amylopectin is a macromolecule material of α-glucose which is bonded with an α-1,4 bond and α-1,6 bond, and thus is a branched molecule. The potato starch of Hausmanns is therefore not the same as, nor does it suggest, the high molecular weight α-1,4-glucan of the present invention.

Bengs et al. disclose a gel which comprises poly-α-1,4-D-glucan and starch (see abstract). Starch, as mentioned above, is clearly different from the α-1,4-glucan of the present invention, which does not have any branched structure. Starch should have a branched structure.

The present invention provides a molded article from α-1,4-glucan. In the present invention, a high molecular weight α-1,4-glucan is combined with a low molecular weight α-1,4-glucan to make it possible to easily form a gelled article. The molded article of the present invention also has excellent biodegradability. The cited references do not suggest a combination of high molecular weight α-1,4-glucan and low molecular weight α-1,4-glucan.

For these reasons, Applicants take the position that the presently claimed invention is clearly patentable over the applied references.

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of objection and rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

Respectfully submitted,

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